

Clinical Trial Protocol

Iranian Registry of Clinical Trials

29 May 2026

Evaluation of the effect of occlusal adjustment on relapse after orthodontic treatment by T-scan III

Protocol summary

Study aim

Determining the effect of occlusal space on the amount of relapse crowding after orthodontic treatment using T-scan III

Design

The clinical trial is a parallel groups study with two groups, single blind, randomized. Study would be conducted on 40 patients, and randomizer.org would be used for randomization.

Settings and conduct

Patients undergoing orthodontic treatment in the morning and evening shifts of Ferdowsi University who are in the final phase of their treatment and if they are eligible will be included in the study and will be randomly assigned to the intervention and control groups using the random block method. This would be a single blind study, in such a way that the analysts will not know about the study method

Participants/Inclusion and exclusion criteria

Inclusion criteria: 30-17 years old patient who has class 1 malocclusion problem with double jaw tooth protrusion or crowding more than 4 mm and has undergone fixed orthodontic treatment of both jaws with extraction of first premolar teeth in both arches and their treatment system is MBT0 22 and are at the end of their treatment phase
Exclusion criteria: Patients with systemic disease, improper oral hygiene, gingivitis or periodontal problems or deep caries that have spread to the cement enamel junction, taking drugs that affect bone metabolism such as drugs that prevent bone resorption, Patient with parafunction habit

Intervention groups

In the intervention group, one month after complete debonding and full-time use of the transparent retainer, occlusal adjustment (selective scraping of the surface of the teeth to remove the anterior contacts) is performed. And in the control group, occlusal adjustment is not performed.

Main outcome variables

Inter canine width

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20230310057665N1**

Registration date: **2023-11-12, 1402/08/21**

Registration timing: **prospective**

Last update: **2023-11-12, 1402/08/21**

Update count: **0**

Registration date

2023-11-12, 1402/08/21

Registrant information

Name

Farnaz zia

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 51 3762 0839

Email address

farnaz_ziya91@yahoo.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2023-12-01, 1402/09/10

Expected recruitment end date

2024-04-29, 1403/02/10

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Evaluation of the effect of occlusal adjustment on relapse after orthodontic treatment by T-scan III

Public title

Evaluation of the occlusal adjustment on orthodontic's relaps by T-scan III

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria:

Patients between 17-30 years of age with class 1 dental malocclusion with double jaw tooth protrusion or crowding more than 4 mm underwent fixed orthodontic treatment with extraction of 4 first premolar teeth of two jaws underwent fixed orthodontic treatment with MBT 0.22 bracket system.

Exclusion criteria:

Patient with parafunction habit systemic disease poor oral hygiene Gingivitis or periodontal problems or deep caries that have spread to the cement enamel junction Taking drugs that affect bone metabolism, such as drugs that prevent bone resorption

Age

From **17 years** old to **30 years** old

Gender

Both

Phase

N/A

Groups that have been masked

- Data analyser

Sample size

Target sample size: **40**

Randomization (investigator's opinion)

Randomized

Randomization description

In this study, permutation block method is used to generate random allocation sequences of people to study groups. The random assignment sequence of people is performed using random allocation software and block size two. Permutation blocks method is one of the random allocation methods in which each block is selected according to the number of groups studied. In this study, there are two blocks AB and BA. If the first block, AB, is chosen, the first is assigned to group A and the second to group B. And this process continues until the allocation of all samples. The feature of this method is that the two study groups will have equal numbers.

Blinding (investigator's opinion)

Single blinded

Blinding description

Due to the nature of the work, the experimenter and the tested people cannot be blinded, and the people who analyze the results at the end of the work are blind. The cassettes are only given to the analyst by number.

Placebo

Not used

Assignment

Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Faculty of Dentistry, Mashhad University of Medical Sciences

Street address

Dentistry faculty, in front of Mellat park, Vakilabad blv, Mashhad

City

Mashhad

Province

Razavi Khorasan

Postal code

9177948959

Approval date

2023-02-15, 1401/11/26

Ethics committee reference number

IR.MUMS.DENTISTRY.REC.1401.143

Health conditions studied

1

Description of health condition studied

Investigating orthodontic relapse using T-scan III

ICD-10 code

K07.2

ICD-10 code description

Anomalies of dental arch relationship

Primary outcomes

1

Description

Inter canine width

Timepoint

Pre intervention, 6 months after intervention

Method of measurement

Image J software

Secondary outcomes

1

Description

Root paralleling

Timepoint

1 month before the intervention and 6 months after the intervention

Method of measurement

Image J software

Intervention groups

1

Description

Intervention group: Inclusion criteria would be patients undergoing fixed orthodontic treatment with MBT prescription brackets with bimaxillary protrusion or with 4mm crowding or more. After debonding, a plaster mold would be created from both dentitions. Then they would be instructed to use their ESSIX VFR retainers for one month full-time and one-month part-time. One-month after debonding and wearing retainers full time, occlusal adjustment would be done by selectively grinding occlusal contacts to mitigate the precursors for potential orthodontic relapse and dental relationship would be then evaluated by T-scan device. Six months after debonding, plaster casts would be made again, and dental relations would be evaluated by T-scan device. By comparing the initial and final plaster casts, relapse would be assessed.

Category

Treatment - Devices

2

Description

Control group: the conditions are completely similar to the intervention group, but after complete debonding, occlusal adjustment is not done, and patients are evaluated with a T-scan device immediately after debonding, 1 month after debonding, and 6 months after debonding, and also immediately after debonding and 6 months after debonding, casting is done with alginate and the primary and secondary casts are compared to check the amount of relaps.

Category

Treatment - Devices

Recruitment centers

1

Recruitment center

Name of recruitment center

Special Clinic of the Faculty of Dentistry and
Department of Orthodontics

Full name of responsible person

Farnaz Zia

Street address

No.74,19th West Bozorgmehr,Sajjad BLV

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9186663977

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Email

Farnaz_ziya91@yahoo.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Mashhad University of Medical Sciences

Full name of responsible person

Majid Ghayourmobarhan

Street address

No 1/2 Parastar avenue, Ahmadabad avenue,
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Ghayourm@mums.ac.ir

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Mashhad University of Medical Sciences

Proportion provided by this source

100

Public or private sector

Public

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

Mashhad University of Medical Sciences

Full name of responsible person

Arezoo Jahanbin

Position

Professor

Latest degree

Specialist

Other areas of specialty/work

Dentistry

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Faculty of Dentistry,in front of Mellat park,Vakilabad
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Person responsible for scientific inquiries

Contact

Name of organization / entity

Mashhad University of Medical Sciences

Full name of responsible person

Arezoo Jahanbin

Position

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Latest degree

Specialist

Other areas of specialty/work

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Person responsible for updating data

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Position

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Latest degree

Medical doctor

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

Justification/reason for indecision/not sharing IPD

There is no further information

Study Protocol

No - There is not a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

No - There is not a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available

Title and more details about the data/document

The data is reported as an average and the original data is also available

When the data will become available and for how long

The start of the access period after September 2025

To whom data/document is available

Everyone is allowed

Under which criteria data/document could be used

The use of raw data is not allowed

From where data/document is obtainable

To Farnaz Zia with mobile number 09126838974

What processes are involved for a request to access data/document

The data is not published

Comments